IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

(Attorney Docket No. 16135US02)

In the Application of:

Frederic Hayem

Serial No. 10/733,861

Filed: December 11, 2003

For: MULTI-PROCESSOR PLATFORM FOR WIRELESS COMMUNICATION TERMINAL HAVING A PARTITIONED PROTOCOL STACK

Examiner: Fred A. Casca

Group Art Unit: 2617

Confirmation No. 8099

Electronically Filed on March 2, 2009
FWW

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from an Office Action mailed on September 30, 2008 ("Final Office Action"), in which claims 1-7, 12-18, and 27-30 were finally rejected. The Appellant respectfully requests that the Board of Patent Appeals and Interferences ("Board") reverse the final rejection of claims 1-7, 12-18, and 27-30 of the present application. The Appellant notes that this Appeal Brief is timely filed within the period for reply that ends on February 28, 2009.

REAL PARTY IN INTEREST
(37 C.F.R. § 41.37(c)(1)(i))

Broadcom Corporation, a corporation organized under the laws of the state of California, and having a place of business at 5300 California Avenue, Irvine, California 92617, has acquired the entire right, title and interest in and to the invention, the application, and any and all patents to be obtained therefor, as set forth in the Assignment recorded at Reel 015247, Frame 0903 in the PTO Assignment Search room.

RELATED APPEALS AND INTERFERENCES
(37 C.F.R. § 41.37(c)(1)(ii))

The Appellant is unaware of any related appeals or interferences.

STATUS OF THE CLAIMS
(37 C.F.R. § 41.37(c)(1)(iii))

Claims 1-7, 12-18, and 27-30 were finally rejected. Pending claims 1-7, 12-18, and 27-30 are the subject of this appeal.

The present application includes claims 1-7, 12-18, and 27-30, which are pending in the present application (See present application at pages 25-29). Claims 1, 13, 27, 29 and 30 are independent claims. Claims 2-7, 12, 14-18 and 28 respectively depend directly, or indirectly, from corresponding independent claims 1, 13 and 27.

Claims 5 and 30 are rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirements.

Claims 1-2, 4-7, 12-14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann et al. (U.S. Pub. No. 2002/0141441A1, hereinafter "Neumann") in view of Kransmo (US Patent 6,594,242 B1, hereinafter "Kransmo").

Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann in view of Perlman (U.S. Pub. No. 2002/0114360A1, hereinafter "Perlman").

Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann in view of Kransmo, and further in view of Perlman.

Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann in view of Kransmo, and further in view of Schmidt (US Pub. No. 2003/0067894 A1, hereinafter "Schmidt").

The Appellant identifies claims 1-7, 12-18, and 27-30 as the claims that are being appealed. The text of the pending claims is provided in the Claims Appendix.

STATUS OF AMENDMENTS
(37 C.F.R. § 41.37(c)(1)(iv))

The Appellant has not amended any claims subsequent to the final rejection of claims 1-7, 12-18, and 27-30 mailed on September 30, 2008.

SUMMARY OF CLAIMED SUBJECT MATTER
(37 C.F.R. § 41.37(c)(1)(v))

The invention of claim 1 is illustratively described in, for example, the "Brief Summary of the Invention" section at page 5, and at least the detail descriptions of Figs.

5-9. For example, a multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) including a first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) configured to execute low level stack operations (i.e., lower MAC and PHY layer 910 in Fig. 9) of a first wireless communications protocol (i.e., WLAN 802.11 protocol) employed within a first wireless communications network (i.e., WLAN 802.11 network). *See* present application at page 5, lines 8-10. The wireless device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) also includes a host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) configured to execute (i) a set of protocol stack operations (i.e., WCDMA stack functions 716 in Fig. 9) of a second wireless communications protocol (i.e., WCDMA protocol) employed within a second wireless communications network ("first wireless communications network" is originally specified in the specification as a typo error, it is meant to be "**second** wireless communications network" instead, as supported by the corresponding second WCDMA communications protocol as shown in Fig. 9), and (ii) higher-level stack operations (i.e., functions of WLAN upper MAC layer 908 in Fig. 9) of the first wireless communication protocol (i.e., 802.11 protocol). *See id* at page 5, lines 10-13. A data communication channel (i.e., a bus connection shown as a channel between the host processor 916 and 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) is provided between the host baseband processor (i.e., host processor 916 in Fig. 9) and the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) and is capable of carrying data received by the multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9)

from the first wireless communications network (i.e., WLAN 802.11 protocol) or sent by the multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) through the first wireless communications network (i.e., WLAN 802.11 network). *See id* at page 5, lines 13-18.

In addition, one or both of the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) and the host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) enabling switching between bearers (i.e., WLAN 802.11 protocol and WCDMA protocol in Fig. 9) utilizing the low-level stack operations (i.e., lower MAC and PHY layer 910 in Fig. 9) and the set of protocol stack operations (i.e., WCDMA stack functions 716 in Fig. 9) and maintaining bearer connections (i.e., maintain connections via the common stack functions 720 of the communication stratum 506 that runs the applications App1 to App M at the application level in Fig. 9) during the switching (i.e., between WLAN 802.11 protocol and WCDMA protocol in Fig. 9). *See id* at page 11, lines 3-7 for description in Fig. 5, and at page 17, lines 1-5 for description in Fig. 9.

Claims 2-7 and 12 are dependent directly or indirectly upon independent claim 1.

The invention of claim 13 is illustratively described in, for example, the "Brief Summary of the Invention" section at page 5, and at least the detail descriptions of Figs. 5-9. For example, the present invention also relates to a method performed in a wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) disposed for communication with first and second wireless communications networks (i.e., WLAN 802.11 network and WCDMA network in Fig. 9) in accordance with first and

second wireless communication protocols (i.e., WLAN 802.11 protocol and WCDMA protocol in Fig. 9), respectively. *See id* at page 5, lines 25-28. The method includes executing low-level stack operations (i.e., lower MAC and PHY layer 910 in Fig. 9) of the first wireless communications protocol (i.e., WLAN 802.11 protocol) within a first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9). *See id* at page 5, lines 28-29. A set of protocol stack operations (i.e., WCDMA stack functions 716 in Fig. 9) of a second wireless communications protocol (i.e., WCDMA protocol) and higher-level stack operations (i.e., functions of WLAN upper MAC layer 908 in Fig. 9) of the first wireless communications protocol (i.e., WLAN 802.11 protocol) are also executed within a host baseband processor (i.e., host baseband processor platform 901 in Fig. 9). *See id* at page 5, line 29 to page 6, line 1. A data communication channel (i.e., a bus connection shown as a channel between the host processor 916 and 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) capable of carrying data received by the wireless communication device from the first wireless communications network or sent by the wireless communication device through the first wireless communications network (i.e., WLAN 802.11 network) is established between the host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) and the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9). *See id* at page 6, lines 1-5.

In addition, switching between bearers (i.e., WLAN 802.11 protocol and WCDMA protocol in Fig. 9) utilizing said low-level stack operations (i.e., lower MAC and PHY layer

910 in Fig. 9) and said set of protocol stack operations (i.e., WCDMA stack functions 716 in Fig. 9) and maintaining bearer connections (i.e., maintain connections via the common stack functions 720 of the communication stratum 506 that runs the applications App1 to App M at the application level in Fig. 9) during the switching (i.e., between WLAN 802.11 protocol and WCDMA protocol in Fig. 9). *See id* at page 11, lines 3-7 for description in Fig. 5, and at page 17, lines 1-5 for description in Fig. 9.

Claims 14-18 are dependent directly or indirectly upon independent claim 13.

The invention of claim 27 is illustratively described in, for example, the Specification of the present application in, for example, "Brief Summary of the Invention" section at page 5, and at least the detail descriptions of Figs. 5-9. For example, a multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) including a first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) configured to execute low level stack operations (i.e., lower MAC and PHY layer 910 in Fig. 9) of a first wireless communications protocol (i.e., WLAN 802.11 protocol) employed within a first wireless communications network (i.e., WLAN 802.11 network). *See* present application at page 5, lines 8-10. The wireless device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) also includes a host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) configured to execute (i) a set of protocol stack operations (i.e., WCDMA stack functions 716 in Fig. 9) of a second wireless communications protocol (i.e., WCDMA protocol) employed within a second wireless communications network ("first wireless communications network" is

originally specified in the specification as a typo error, it is meant to be "**second** wireless communications network" instead, as supported by the corresponding second WCDMA communications protocol as shown in Fig. 9), and (ii) higher-level stack operations (i.e., functions of WLAN upper MAC layer 908 in Fig. 9) of the first wireless communication protocol (i.e., 802.11 protocol). *See id* at page 5, lines 10-13. A data communication channel (i.e., a bus connection shown as a channel between the host processor 916 and 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) is provided between the host baseband processor (i.e., host processor 916 in Fig. 9) and the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) and is capable of carrying data received by the multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) from the first wireless communications network (i.e., WLAN 802.11 protocol) or sent by the multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) through the first wireless communications network (i.e., WLAN 802.11 network). *See id* at page 5, lines 13-18.

In addition, the host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) includes a common stack functions module (i.e., common stack functions 720 in Fig. 9) communicating to one or more application modules (i.e., App1 to AppM in the application stratum 504 in Fig. 9). The common stack functions module (i.e., common stack functions 720 in Fig. 9) executing functions (i.e., Session Management function, *see id* at page 17, lines 8-20) common to the first and second wireless communications protocols (i.e., WLAN 802.11 protocol and WCDMA protocol). A first bearer-specific module (i.e., 802.11 Upper MAC layer 908 in Fig. 9) for implementing

bearer-specific stack functions related to said first wireless communications protocol (i.e., WLAN 802.11 protocol); and a second buffer (i.e., buffer 920 in Fig. 9) in communication with the first bearer-specific module (i.e., 802.11 Upper MAC layer 908 in Fig. 9) and the common stack functions module (i.e., common stack functions 720 in Fig. 9); and wherein the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) includes a first physical layer module (i.e., 802.11 Lower MAC and PHY layer 910 in Fig. 9) for implementing physical layer functions; a first buffer (i.e., buffer 924 in Fig. 9) in communication with the first physical layer module (i.e., 802.11 Lower MAC and PHY layer 910 in Fig. 9) and the first bearer-specific module (i.e., 802.11 Upper MAC layer 908 in Fig. 9).

Claims 28 is dependent upon independent claim 27.

The invention of claim 29 is illustratively described in, for example, the "Brief Summary of the Invention" section at page 5, and at least the detail descriptions of Figs. 5-9. For example, a multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) including a first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) configured to execute low level stack operations (i.e., lower MAC and PHY layer 910 in Fig. 9) of a first wireless communications protocol (i.e., WLAN 802.11 protocol) employed within a first wireless communications network (i.e., WLAN 802.11 network). *See* present application at page 5, lines 8-10. The wireless device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) also includes a host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) configured to execute (i) a set of protocol stack operations (i.e., WCDMA stack

functions 716 in Fig. 9) of a second wireless communications protocol (i.e., WCDMA protocol) employed within a second wireless communications network ("first wireless communications network" is originally specified in the specification as a typo error, it is meant to be "**second** wireless communications network" instead, as supported by the corresponding second WCDMA communications protocol as shown in Fig. 9), and (ii) higher-level stack operations (i.e., functions of WLAN upper MAC layer 908 in Fig. 9) of the first wireless communication protocol (i.e., 802.11 protocol). *See id* at page 5, lines 10-13. A data communication channel (i.e., a bus connection shown as a channel between the host processor 916 and 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) is provided between the host baseband processor (i.e., host processor 916 in Fig. 9) and the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) and is capable of carrying data received by the multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) from the first wireless communications network (i.e., WLAN 802.11 protocol) or sent by the multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) through the first wireless communications network (i.e., WLAN 802.11 network). *See id* at page 5, lines 13-18. One or both of the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) and the host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) enabling switching between bearers (i.e., WLAN 802.11 protocol and WCDMA protocol in Fig. 9) utilizing the low-level stack operations (i.e., functions of lower MAC and PHY layer 910 in Fig. 9) and the set of protocol stack operations (i.e., WCDMA stack functions 716 in Fig.

9) and maintaining bearer connections (i.e., maintain connections via the common stack functions 720 of the communication stratum 506 that runs the applications App1 to App M at the application level in Fig. 9) during the switching (i.e., between WLAN 802.11 protocol and WCDMA protocol in Fig. 9). *See id* at page 11, lines 3-7 for description in Fig. 5, and at page 17, lines 1-5 for description in Fig. 9.

In addition, the host baseband processor (i.e., host processor 916 in Fig. 9) includes a first bearer-specific module (i.e., WLAN upper MAC layer 908 in Fig. 9) for implementing bearer-specific stack functions related to the first wireless communications protocol (i.e., WLAN 802.11 protocol); and the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) includes a first physical layer module (i.e., lower MAC and PHY layer 910 in Fig. 9) for implementing physical layer functions; and a first buffer (i.e., buffer 924 in Fig. 9) in communication with the first physical layer module (i.e., lower MAC and PHY layer 910 in Fig. 9) and the first bearer-specific module (i.e., WLAN upper MAC layer 908 in Fig. 9).

The invention of claim 30 is illustratively described in, for example, the "Brief Summary of the Invention" section at page 5, and at least the detail descriptions of Figs. 5-9. For example, a multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) including a first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) configured to execute low level stack operations (i.e., lower MAC and PHY layer 910 in Fig. 9) of a first wireless communications protocol (i.e., WLAN 802.11 protocol) employed within a first wireless communications network (i.e., WLAN 802.11 network). *See* present application at page

5, lines 8-10. The wireless device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) also includes a host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) configured to execute (i) a set of protocol stack operations (i.e., WCDMA stack functions 716 in Fig. 9) of a second wireless communications protocol (i.e., WCDMA protocol) employed within a second wireless communications network ("first wireless communications network" is originally specified in the specification as a typo error, it is meant to be "**second** wireless communications network" instead, as supported by the corresponding second WCDMA communications protocol as shown in Fig. 9), and (ii) higher-level stack operations (i.e., functions of WLAN upper MAC layer 908 in Fig. 9) of the first wireless communication protocol (i.e., 802.11 protocol). *See id* at page 5, lines 10-13. A data communication channel (i.e., a bus connection shown as a channel between the host processor 916 and 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) is provided between the host baseband processor (i.e., host processor 916 in Fig. 9) and the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) and is capable of carrying data received by the multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) from the first wireless communications network (i.e., WLAN 802.11 protocol) or sent by the multi-mode wireless communication device (i.e., tri-mode wireless terminal platform 900 in Fig. 9) through the first wireless communications network (i.e., WLAN 802.11 network). *See id* at page 5, lines 13-18. One or both of the first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) and the host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) enabling

switching between bearers (i.e., WLAN 802.11 protocol and WCDMA protocol in Fig. 9) utilizing the low-level stack operations (i.e., functions of lower MAC and PHY layer 910 in Fig. 9) and the set of protocol stack operations (i.e., WCDMA stack functions 716 in Fig. 9) and maintaining bearer connections (i.e., maintain connections via the common stack functions 720 of the communication stratum 506 that runs the applications App1 to App M at the application level in Fig. 9) during the switching (i.e., between WLAN 802.11 protocol and WCDMA protocol in Fig. 9). *See id* at page 11, lines 3-7 for description in Fig. 5, and at page 17, lines 1-5 for description in Fig. 9.

In addition, the host baseband processor (i.e., host processor 916 in Fig. 9) includes a first bearer-specific module (i.e., WLAN upper MAC layer 908 in Fig. 9) for implementing bearer-specific stack functions related to the first wireless communications protocol (i.e., WLAN 802.11 protocol), a second buffer (i.e., buffer 920 in Fig. 9) in communication with the first bearer-specific module (i.e., WLAN upper MAC layer 908 in Fig. 9) and a common stack functions module (i.e., common stack functions 720). The first baseband co-processor (i.e., 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9) includes a first physical layer module (i.e., lower MAC and PHY layer 910 in Fig. 9) for implementing physical layer functions; and a first buffer (i.e., buffer 924 in Fig. 9) in communication with the first physical layer module (i.e., lower MAC and PHY layer 910 in Fig. 9) and the first bearer-specific module (i.e., WLAN upper MAC layer 908 in Fig. 9) from the host baseband processor (i.e., host baseband processor platform 901 in Fig. 9) via the data communication channel (i.e., a bus connection shown as a channel

between the host processor 916 and 802.11 BB chip or WLAN baseband co-processor 904 in Fig. 9).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL (37 C.F.R. § 41.37(c)(1)(vi))

Claims 5 and 30 are rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description. Claims 1-2, 4-7, 12-14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann et al. (U.S. Pub. No. 2002/0141441A1, hereinafter "Neumann") in view of Kransmo (US Patent 6,594,242 B1, hereinafter "Kransmo"). Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann in view of Perlman (U.S. Pub. No. 2002/0114360A1, hereinafter "Perlman"). Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann in view of Kransmo, and further in view of Perlman. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann in view of Kransmo, and further in view of Schmidt (US Pub. No. 2003/0067894 A1, hereinafter "Schmidt").

ARGUMENT
(37 C.F.R. § 41.37(c)(1)(vii))

I. Rejection under 35 U.S.C. § 112, First Paragraph

Claims 5 and 30 are rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description.

> "Claim 30 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
>
> Independent claim 5 has been amended to contain new matter. The phrase "from said host baseband processor via said data communication channel" added to independent claim 5 does not appear to be supported by the specification as originally filed."

See the Final Office Action at page 5. The Examiner is referred to the Claim Status section above for support to the amendments in claim 30, which is illustratively described in at least the "Brief Summary of the Invention" section at page 5, and the corresponding detail descriptions of Figs. 5-9.

With regard to the rejection of independent claim 5, the Appellant points out that claim 5 is a dependent claim and does not contain the claim language "from said host baseband processor via said data communication channel". However, such language is found at the end of claim 30. The Examiner is referred to the arguments to claim 30 above, that the claimed "data communication channel' refers to the bus connection between the host processor 916 and the buffer 924 in Fig. 9.

Based on the above arguments, the Appellant respectfully requests that the rejection of claims 5 and 30 under 35 U.S.C. 112, first paragraph be withdrawn.

II. Rejection of Independent Claims 1-2, 4-7, 12-14, and 16-18 under 35 U.S.C. § 103(a)

The Appellant first turns to the rejection of claims 1-2, 4-7, 12-14, and 16-18 under 35 U.S.C. § 103(a) as being unpatentable over Neumann in view of Kransmo. In order for a *prima facie* case of obviousness to be established, the Manual of Patent Examining Procedure, Rev. 6, Sep. 2007 ("MPEP") states the following:

> The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."

See the MPEP at § 2142, citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), and *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). Further, MPEP § 2143.01 states that "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art" (citing *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385,

1396 (2007)). Additionally, if a *prima facie* case of obviousness is not established, the Appellant is under no obligation to submit evidence of nonobviousness:

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the Appellant is under no obligation to submit evidence of nonobviousness.

See MPEP at § 2142.

A. Arguments to the Rejection of Independent Claims 1 and 13

Regarding claim 1, the Appellant submits that the combination of Neumann and Kransmo at least does not disclose "enabling switching between bearers utilizing said low-level stack operations and said set of protocol stack operations and maintaining bearer connections during said switching," as recited in claim 1 by the Appellant.

In the Final Office Action, the Examiner concedes the following:

> "Neumann is silent about switching between bearers and maintaining bearer connections during switching as claimed"

See the Final Office Action at page 7. The Examiner then relies for support on Kransmo and states the following:

> "However, the concepts of switching between different networks and hence different protocols and maintaining the connection are conventional in the art. Specifically, **during a handoff process from a first network using a first protocol to a second network using a second protocol a switch between the networks has to take place**. Consequently, the switch between different networks requires switching between different protocols.
>
> Kransmo teaches a handover and roaming of a dual mode wireless terminal from a 3G network to a 2G network (abstract, col. 1, lines 50-67, and col. 2, lines 18-21, "handover and roaming of a wireless terminal from a third generation . . . to a second generation (2G) communication

> system", "operating protocols", note that a dual-mode mobile terminal capable of operating and roaming in two different systems is provided, where the handover process from a 3G system to a 2G **inherently** allows the dual mode wireless terminal to switch networks and **maintain connection with at least one of** the 2G and/or 3G networks and thus maintaining connection bearer a connection)"

See the Final Office Action at page 7 (emphasis added). The Examiner alleges that Kransmo discloses a wireless terminal handover from a 3G network to a 2G network by switching from a 3G communication protocol to a 2G communication protocol within the wireless terminal. More specifically, the Examiner relies for support on the following citation of Kransmo:

> "The present invention .. providing handover and roaming of a wireless terminal from a 3G communication system to a 2G communication system, ... **a dual-mode wireless terminal operating in a 3G communication system to obtain control channel information regarding a 2G communication system**, and to **switch service as a function of the control channel information received**. ... handover and roaming of a wireless terminal from a third generation (3G) communication system to a second generation (2G) communication system, **comprising the step of providing control channel information for the 2G communication system over a downlink control channel of the 3G communication system to the wireless terminal.**"

See Kransmo at col. 1, lines 51-67. The Examiner equates Kransmo's mobile station MS 12 to the claimed dual-mode wireless terminal, the 3G communication system (i.e., network 14) to the claimed first wireless communication network, and the 2G communication system (i.e., network 18) to the claimed second wireless communication network. The Examiner alleges that Kransmo's 3G network 14 utilizes 3G communication protocols, and the 2G communication network 18 utilizes 2G

communication protocols, therefore, when the mobile station MS 12 (i.e., the alleged dual-mode wireless terminal) is switched (handed over) from a 3G network to a 2G network, the mobile station MS 12 (i.e., the alleged dual-mode wireless terminal) would also allegedly switch from a 3G communication protocol to a 2G communication protocol in order to operate in the 2G network. The Appellant respectfully disagrees and points out that, in both the Final Office Action and again in the Advisory Office Action, the Examiner fails to provide support as required by MPEP § 2142 to show that Kransmo suggests or discloses the use of any communication protocols, both in the 3G and/or 2G networks, and in the mobile station MS 12 itself (i.e., the alleged dual-mode wireless terminal), as asserted by the Examiner.

Nevertheless, even assuming for the sake of argument that a 3G communication network 14 does operate a 3G communication protocol, and a 2G communication network 18 does operate a 2G communication protocol, Kransmo still **does not** disclose or suggest that **the mobile station MS 12 itself** (i.e., the alleged dual-mode wireless terminal) performs any protocol stack operation. Kransmo also does not disclose that the mobile station MS 12 (i.e., the alleged dual-mode wireless terminal) performs switching from a 3G communication protocol to a 2G communication protocol (i.e., the alleged switching bearers) during the handover process.

In the 11/24/2008 response to Final Office Action, the Appellant at pages 15-16 pointed out the inconsistencies of the Examiner's arguments, namely, Kransmo does not disclose or suggest that there is any communication protocol switching within the mobile

station MS 12 device itself, when switching from a 3G communication network to a 2G communication network. Instead, Kransmo discloses that **the switching is based on providing control channel information for the 2G communication system over a downlink control channel of the 3G communication system to the wireless terminal**. More specifically, Kransmo discloses that the mobile station MS 12 utilizes the control channel information, such as the S-burst 58 (Synchronization Channel SCH) of a GSM 2G frame 50, to synchronize with the blank slot 60 of a WCDMA 3G frame 54 (see Fig. 2 and Kransmo at col. 4, lines 46-56). In other words, Kransmo discloses that during switching from a 3G network to a 2G network, the GSM 2G network frame control channel information is provided to the mobile station MS 12 (which operates in WCDMA 3G network frame), resulting in a reduction in channel frequency search time or a reduction in handover time (see Kransmo Fig. 3, and at col. 2, lines 18-31).

In this regard, the synchronization of control channel information of the S-burst 58 (Synchronization Channel SCH) of a GSM 2G frame 50 to the blank slot 60 of a WCDMA 3G frame 54, are **unrelated to protocol switching within the mobile station** MS 12. Furthermore, Kransmo in the above citation clearly discloses that the mobile station MS 12 continues to operates in the WCDMA 3G network frame, while synchronizing with the 2G network control channel information during handover from a 3G to a 2G network. Therefore, the Examiner's allegation that Kransmo discloses or suggests the claimed "...switching between bearers utilizing said low-level stack operations and said set of protocol stack operations..." is contrary to Kransmo's

disclosure.

To further substantiate the Appellant's argument, the Examiner is also referred to Kransmo in Fig. 3, where Kransmo discloses that slot 64 of a 3G network data frame 66 contains 2G network Control Channel information 62 for network synchronization. Also, Kransmo in Fig. 2 discloses that a mobile station MS 12 compresses transmission to leave blank slots idle, and align time T2 of a 3G WCDMA data frame 54 with time T1 of a 2G GSM frame 50. More specifically, Kransmo's Fig. 3 illustrates that the 2G Control Channel CCH information 62, which is used to align or synchronize the 3G WCDMA frame data slot 64, enables the mobile station MS 12 to roam from a 3G to a 2G network efficiently (see Kransmo at col. 4, line 64 -col. 5, line 20) while remaining in 3G WCDMA operation. Therefore, Kransmo discloses synchronizing 2G control channel information to a 3G frame in the mobile station MS 12, in switching from a 3G network to a 2G network. Kransmo simply does not disclose or suggest any "protocol switching function" performed by the mobile station MS 12, in switching from a 3G to a 2G network, as alleged by the Examiner.

The Examiner, in the Advisory Office Action, further argues that 3G communication networks use soft handover, thus alleging that "during the soft handover (switching), the dual-mode device of Kransmo (i.e., the mobile station MS 12) can have simultaneous connections to both 3G and 2G networks and with their respective protocols". The Appellant respectfully disagrees and points out that soft handover or soft handoff, is applicable to CDMA based network cells, such as a 3G WCDMA network

cells (see Newton's Telecom Dictionary, 20th edition, at page 763). In other words, soft handover is only applicable to mobile devices which roams between network cells that operate under the same WCDMA 3G communication protocols, and not between two different communication networks (i.e., between a 3G network and a 2G network). In this regard, the Examiner's soft handover argument between a 3G network and a 2G network is incorrect.

Therefore, based on the above rationale, the Appellant maintains that Kransmo does not overcome the deficiencies of Neumann. The Appellant submits that the combination of Neumann and Kransmo does not disclose or suggest "enabling switching between bearers utilizing said low-level stack operations and said set of protocol stack operations and maintaining bearer connections during said switching," as recited in claim 1 by the Appellant, and a prima facie case of obviousness has not been established. The Appellant submits that claim 1 is, therefore, allowable.

Independent claim 13 is similar in many respects to the method disclosed in independent claim 1. Therefore, the Appellant submits that independent claim 13 is also allowable at least for the reasons stated above with regard to claim 1.

B. Rejection of Dependent Claims 2-6 and 8-12

Claims 2, 4-7, 12-14 and 16-18 depend directly or indirectly from independent claims 1 and 13, respectively, and are, consequently, also respectfully submitted to be allowable at least for the reasons stated above with regard to allowability of claim 1. The

Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 2, 4-7, 12-14 and 16-18.

III. Rejection of Claims 27-28 under 35 U.S.C. § 103(a)

The Appellant now turns to the rejection of claims 27-28 under 35 U.S.C. § 103(a) as being unpatentable over Neumann in view of Perlman.

With regard to the rejection of independent claim 27 under 35 U.S.C. § 103(a) over Neumann in view of Perlman, the Appellant submits that the combination of Neumann and Perlman does not disclose "a first bearer-specific module for implementing bearer-specific stack functions related to said first wireless communications protocol," as recited in claim 27 by the Appellant.

The Appellant, in the 11/24/08 response to Final Office Action has specifically pointed out that the Examiner has equated two conflicting elements in the prior art to the same element in the Appellant's claim 27. In the 12/15/08Advisory Office Action, the Examiner seemed to have overlooked the Appellant's argument and repeated the rejection of claims 27 and 28 without any substantive response. For example, the Examiner states the following in page 10 of the Final Office Action

> "a first baseband co-processor (paragraphs 6, 19-22, "TDMA co-processor", "slave baseband co-processor") configured to execute low-level stack operations of a first wireless communications protocol employed within **a first wireless communications network** (figures 2-4, 6B, 813, and paragraphs 6, 19-21, 25 and 29 "TDMA co-processor", **"TDMA IS-136 network"**,...

> a host baseband processor (Fig. 3 and paragraphs 20-22, "GSM master processor") configured to execute a set of protocol stack operations of a second wireless communications protocol (Figs. 5A-6B, paragraphs 20-22, 29, particularly paragraph 29, lines 2-3, "**GSM network**", "the GSM master processor 202 controls all GSM system related functions") employed within **a second wireless communications network** (figures 1-4, paragraphs 20-22, "**GSM network**")

See the Final Office Action at page 10. The Examiner first equated the "TDMA network" as the claimed first wireless communication network, and the GSM network as the claimed second wireless communication network. However, the Examiner later states the following:

> "**a first bearer-specific module for implementing bearer-specific stack functions related to said first wireless communications protocol** paragraphs 20, 25 and 29, "Functions dedicated to the GSM master processor include GSM system function and control of GSM radio frequency", "The GSM master processor 202 controls all GSM system related functions and the GSM RF unit 214", note **the GSM master processor controls GSM system function. GSM system functions are the bearer -specific stack function. They are specific to GSM system functions**);"

See the Final Office Action at pages 11 and 12. The Examiner seems to equate that the GSM system functions (i.e., the allegedly second wireless communication network, or the "GSM network") as the first bearer specific stack functions related to the first wireless communications. In this regard, the Appellant submits that the rejection to claims 27-28 is improper at least based on the Examiner's conflicting information (i.e., equating the GSM network to both the first communication network and second communication network).

In addition, based on the Examiner's admission in the Final Office Action that Neumann teaches that the **GSM master processor system function are the bearer specific stack function** <u>**to GSM system**</u> (i.e., the alleged **second wireless communication network**), the Appellant maintains that Neumann does not disclose or suggest "**a first bearer-specific module for implementing bearer-specific stack functions related** <u>**to said first wireless communications protocol**</u>", as recited in claim 27 by the Appellant. Perlman does not overcome the above deficiency of Neumann.

Furthermore, with regard to the rejection of independent claim 27 under 35 U.S.C. § 103(a) over Neumann in view of Perlman, the Appellant submits that the combination of Neumann and Perlman does not disclose "**a second buffer** in communication with said first bearer-specific module and said common stack functions module ... **a first buffer** in communication with said first physical layer module and said first bearer-specific module," as recited in claim 27 by the Appellant. At page 12 of the Final Office Action, the Examiner concedes that Neumann does not disclose a first buffer and a second buffer and states the following:

> "**Neumann does not specifically disclose** that these buffers are located such that in the first baseband co-processor, **a first buffer is in communication with the first physical layer module and the first bearer-specific module, and the in the host baseband processor, a second buffer is in communication with the first bearer-specific module and the common stack functions module**. However, the concept of providing buffers between modules is conventional in the art. Particularly, in network engineering buffers are provided between network nodes to prevent traffic congestion and equalize the data flow among network nodes. Perlman discloses that buffers are provided to

> interconnect system module to improve system performance (Fig. 3, 5 and Par. 71, "buffers may be provided in this manner between any of the system modules")."

See the Final Office Action at page 12. The Examiner alleges that "the concept of providing buffers between modules is conventional in the art", and the Examiner specifically looks to Perlman (Figs. 3, 5 and at ¶71) for support to teach the conventional art. However, the Appellant points out that Perlman is not in a relevant art, since Perlman merely discloses a system and method for processing broadcast multimedia streams, which is unrelated to the wireless communication device, let alone providing buffers for bearer specific stack processing. In this regard, Perlman does not overcome Neumann's above deficiencies in disclosing the first and second buffer in claim 27.

The Examiner restated the rejection in the Advisory Office Action without responding to Appellant's argument.

Based on the foregoing rationale, the Appellant maintains that the combination of Neumann and Perlman does not establish a prima facie case of obviousness to reject the Appellant's independent claim 27, and is respectfully submitted to be allowable. Claim 28 depend from independent claim 27, and is, consequently, also respectfully submitted to be allowable at least for the reasons stated above with regard to allowability of claim 27.

IV. Rejection of Claims 29-30 under 35 U.S.C. § 103(a)

The Appellant now turns to the rejection of claims 29-30 as being unpatentable over Neumann and Kransmo, in view of Perlman.

Regarding independent claims 29-30, the Examiner uses the same rationale as claims 27-28 to reject claims 29-30. The Appellant refers the Examiner to the above arguments in section III. Namely, the Examiner uses ambiguous and conflicting information to reject claims 27-28. Consequently, Neumann does not disclose "said host baseband processor comprises: a first bearer-specific module for implementing bearer-specific stack functions related to said first wireless communications protocol," and "said baseband co-processor comprises ... a first buffer in communication with said first physical layer module and said first bearer-specific module," as recited in claims 29 and 30 by the Appellant. In addition, Kransmo and Perlman do not overcome the above deficiencies of Neumann.

Moreover, the Examiner is referred to the same argument to independent claim 1 above, that the combination of Neumann and Kransmo does not disclose or suggest **"enabling switching between bearers utilizing said low-level stack operations and said set of protocol stack operations and maintaining bearer connections during said switching,"** as recited in claims 29 and 30 by the Appellant. Perlman does not overcome the above deficiencies of Neumann and Kransmo.

Therefore, the Appellant submits that independent claims 29 and 30 should be allowable. Accordingly, the Appellant believes the rejection of independent claims 29

and 30 under 35 U.S.C. § 103(a) as being unpatentable over Neumann in view of Kransmo and Perlman has been overcome and requests that the rejection be withdrawn.

V. The Proposed Combination of Neumann, Kransmo and Schmidt Does Not Render Claims 3 and 15 Unpatentable

Claims 3 and 15 depend from independent claims 1 and 13, respectively, and are, consequently, also respectfully submitted to be allowable at least for the reasons stated above with regard to allowability of claim 1.

CONCLUSION

For at least the foregoing reasons, the Appellant submits that claims 1-2, 4-7, 12-14, and 16-18 are not obvious over Neumann in view of Kransmo. Claims 27-28 are not obvious over Neumann in view of Perlman. Claims 29-30 are not obvious over Neumann in view of Kransmo, and further in view of Perlman. Claims 3 and 15 are not obvious over Neumann in view of Kransmo, and further in view of Schmidt. Reversal of the Examiner's rejection and issuance of a patent on the application are therefore requested.

The Commissioner is hereby authorized to charge $540 (to cover the Brief on Appeal Fee) and any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

Respectfully submitted,

Date: March 2, 2009

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CLAIMS APPENDIX
(37 C.F.R. § 41.37(c)(1)(viii))

1. A multi-mode wireless communication device, comprising:

a first baseband co-processor configured to execute low-level stack operations of a first wireless communications protocol employed within a first wireless communications network;

a host baseband processor configured to execute a set of protocol stack operations of a second wireless communications protocol employed within a second wireless communications network and higher-level stack operations of said first wireless communications protocol;

a data communication channel between said host baseband processor and said first baseband co-processor capable of carrying data received by said multi-mode wireless communication device from said first wireless communications network or sent by said multi-mode wireless communication device through said first wireless communications network; and

one or both of said first baseband co-processor and said host baseband processor enabling switching between bearers utilizing said low-level stack operations and said set of protocol stack operations and maintaining bearer connections during said switching.

2. The device of claim 1, wherein said set of protocol stack operations comprises a complete set of protocol stack operations of said second wireless communications protocol.

3. The device of claim 1 comprising a second baseband processor in communication with said host baseband processor via said data communication channel, said second baseband processor being configured to execute low-level stack operations of said second wireless communications protocol.

4. The device of claim 3, wherein said set of protocol stack operations comprises higher-level protocol stack operations of said second wireless communications protocol.

5. The device of claim 1, wherein said low-level stack operations include physical layer functions and bearer-specific stack functions related to said first wireless communications protocol.

6. The device of claim 1, wherein said higher-level stack functions comprise stack functions common to said first and second wireless communication protocols.

7. The device of claim 1, wherein said host baseband processor is further configured to execute application-layer functions.

8. – 11. (Cancelled)

12. The device of claim 1, wherein said first wireless communications protocol comprises WCDMA and said second wireless communications protocol comprises GSM.

13. A method performed in a wireless communication device disposed for communication with first and second wireless communications networks in accordance with first and second wireless communication protocols, respectively, said method comprising:

executing low-level stack operations of said first wireless communications protocol within a first baseband co-processor;

executing a set of protocol stack operations of a second wireless communications protocol and higher-level stack operations of said first wireless communications protocol within a host baseband processor;

establishing a data communication channel between said host baseband processor and said first baseband co-processor capable of carrying data received by said wireless communication device from said first wireless communications network or sent by said wireless communication device through said first wireless communications network; and

switching between bearers utilizing said low-level stack operations and said set of protocol stack operations and maintaining bearer connections during said switching.

14. The method of claim 13, wherein said executing said set of protocol stack operations comprise executing a complete set of protocol stack operations of said second wireless communications protocol.

15. The method of claim 13 comprising executing low-level stack operations of said second wireless communications protocol within a second baseband processor in communication with said host baseband processor via said data communication channel.

16. The method of claim 15, wherein said executing said set of protocol stack operations comprises executing higher-level protocol stack operations of said second wireless communications protocol.

17. The method of claim 13, wherein said executing said low-level stack operations comprises executing physical layer functions and bearer-specific stack functions related to said first wireless communications protocol.

18. The method of claim 17, wherein said executing higher-level stack functions comprises executing stack functions common to said first and second wireless communication protocols.

19. – 26. (Cancelled)

27. A multi-mode wireless communication device, comprising:

a first baseband co-processor configured to execute low-level stack operations of a first wireless communications protocol employed within a first wireless communications network;

a host baseband processor configured to execute a set of protocol stack operations of a second wireless communications protocol employed within a second wireless communications network and higher-level stack operations of said first wireless communications protocol; and

a data communication channel between said host baseband processor and said first baseband co-processor capable of carrying data received by said multi-mode wireless communication device from said first wireless communications network or sent by said multi-mode wireless communication device through said first wireless communications network,

wherein said host baseband processor comprises:

a common stack functions module communicating to one or more application modules, said common stack functions module executing functions common to said first and second wireless communications protocols;

a first bearer-specific module for implementing bearer-specific stack functions related to said first wireless communications protocol; and

a second buffer in communication with said first bearer-specific module and said common stack functions module; and

wherein said first baseband co-processor comprises:

a first physical layer module for implementing physical layer functions;

a first buffer in communication with said first physical layer module and said first bearer-specific module.

28. The device according to claim 27, wherein said host baseband processor comprises a common stack functions module and one or more application modules, said common stack functions module executing functions common to said first and second wireless communications protocols.

29. A multi-mode wireless communication device, comprising:

a first baseband co-processor configured to execute low-level stack operations of a first wireless communications protocol employed within a first wireless communications network;

a host baseband processor configured to execute a set of protocol stack operations of a second wireless communications protocol employed within a second wireless communications network and higher-level stack operations of said first wireless communications protocol;

a data communication channel between said host baseband processor and said first baseband co-processor capable of carrying data received by said multi-mode wireless communication device from said first wireless communications network or sent

by said multi-mode wireless communication device through said first wireless communications network; and

one or both of said first baseband co-processor and said host baseband processor enabling switching between bearers utilizing said low-level stack operations and said set of protocol stack operations and maintaining bearer connections during said switching,

wherein said host baseband processor comprises:

a first bearer-specific module for implementing bearer-specific stack functions related to said first wireless communications protocol; and

wherein said first baseband co-processor comprises:

a first physical layer module for implementing physical layer functions; and

a first buffer in communication with said first physical layer module and said first bearer-specific module.

30. A multi-mode wireless communication device, comprising:

a first baseband co-processor configured to execute low-level stack operations of a first wireless communications protocol employed within a first wireless communications network;

a host baseband processor configured to execute a set of protocol stack operations of a second wireless communications protocol employed within a second

wireless communications network and higher-level stack operations of said first wireless communications protocol;

a data communication channel between said host baseband processor and said first baseband co-processor capable of carrying data received by said multi-mode wireless communication device from said first wireless communications network or sent by said multi-mode wireless communication device through said first wireless communications network; and

one or both of said first baseband co-processor and said host baseband processor enabling switching between bearers utilizing said low-level stack operations and said set of protocol stack operations and maintaining bearer connections during said switching,

wherein said host baseband processor comprises:

a first bearer-specific module for implementing bearer-specific stack functions related to said first wireless communications protocol; and

a second buffer in communication with said first bearer-specific module and a common stack functions module; and

wherein said first baseband co-processor comprises:

a first physical layer module for implementing physical layer functions; and

a first buffer in communication with said first physical layer module and said first bearer-specific module from said host baseband processor via said data communication channel.

EVIDENCE APPENDIX
(37 C.F.R. § 41.37(c)(1)(ix))

(1) United States Publication No. 2002/0141441A1 ("Neumann"), entered into record by the Examiner in the September 30, 2008 Final Office Action.

(2) United States Patent No. 6,594,242 B1 ("Kransmo"), entered into record by the Examiner in the September 30, 2008 Final Office Action.

(3) United States Publication No. 2002/0114360A1 ("Perlman"), entered into record by the Examiner in the September 30, 2008 Final Office Action.

(4) United States Publication No. 2003/0067894 A1 ("Schmidt"), entered into record by the Examiner in the September 30, 2008 Final Office Action.

RELATED PROCEEDINGS APPENDIX

(37 C.F.R. § 41.37(c)(1)(x))

The Appellant is unaware of any related appeals or interferences.